DOCUMENT RESUME

ED 367 313 IR 016 589

AUTHOR Oliver, Donna B.
TITLE An Assessment of the Assistance Methods Used by Eighth-Grade Students in Learning To Search the Online Catalog.
PUB DATE 94
NOTE 61p.; Requirements for Specialist in Education in Library Media Technology degree, Georgia State University.
PUB TYPE Dissertations/Theses - Undetermined (040) -- Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Cognitive Style; Grade 8; *Information Literacy; Junior High Schools; Junior High School Students; Learning Resources Centers; Library Catalogs; Library Guides; *Library Instruction; Library Skills; Media Specialists; Online Catalogs; *Online Searching; Questionnaires; School Libraries; Secondary Education; *Sex Differences; Student Reaction; User Needs (Information)
IDENTIFIERS *Information Skills; Student Surveys

ABSTRACT

In response to the changes in curriculum as a result of educational reform and the introduction of information technologies into school library media centers, media specialists need to ensure that all students acquire the skills needed to manage information. This study sought to determine what assistance methods eighth-grade students would use to learn to search the online catalog and to determine whether a relationship existed between the gender of the student and the assistance method the student preferred. The five assistance methods offered to the target population were: printed instructions; lessons from the media specialist; assistance from the media staff; assistance from the teacher; and help from another student. A questionnaire surveyed student preference for assistance methods used during a 5-day search period. The results showed that students used a variety of methods to perform searches but that assistance from another student and a demonstration from the media specialist were the methods preferred most; and females preferred extroverted methods while males preferred independent methods. These findings suggest that learners possess a variety of learning style preferences which the library media specialist should consider. The survey instrument and the online guide are included in the appendix. (Contains 18 references.) (Author/JLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

ED 367 313

AN ASSESSMENT OF THE ASSISTANCE METHODS USED BY EIGHTH-GRADE STUDENTS IN LEARNING TO SEARCH THE ONLINE CATALOG

by

Donna B. Oliver

A SCHOLARLY STUDY

Presented in Partial Fulfillment of Requirements for
the Degree of Specialist in Education in Library
Media Technology in the Department
of Curriculum and Instruction
in the College of Education of
Georgia State University

Atlanta, Georgia

1994

IR016589

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Donna B. Oliver
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACT

AN ASSESSMENT OF THE ASSISTANCE METHODS USED BY EIGHTH-GRADE STUDENTS IN LEARNING TO SEARCH THE ONLINE CATALOG

by

DONNA B. OLIVER

Purpose

The purpose of this study was to determine what assistance methods eighth-grade students would use to learn to search the online catalog and to determine whether a relationship exists between the gender of the student and the assistance method the student prefers.

Methods and Procedures

Subjects were eighth-grade students at one middle school who were searching for resources for their research projects. The five assistance methods offered were: printed instructions, a lesson presented by the media specialist, assistance by the media staff, assistance by the teacher, and help by another student. A questionnaire surveyed student preference for assistance methods used during a five day searching

period. An independent samples chi-square test was used to test relationships between gender and assistance method preference.

Results

Students used a variety of methods to perform searches. Assistance from another student and a demonstration by the media specialist were the methods preferred most. The method preferred least was that of printed instructions. A statistically significant correlation at the .05 level appeared between gender and the assistance method preferred, with more females preferring extroverted methods and more males preferring independent methods.

Conclusions

Students preferred a variety of available methods to learn to perform searches on the online catalog. These findings suggest that learners possess a variety of learning-style preferences which the library media specialist should consider, acting both in the role of teacher and in the role of instructional consultant.

TABLE OF CONTENTS

CHAPTER		PAGE
1	Introduction	1
	Overview	1
	Statement of the Problem	6
	Significance of the Study	6
	Assumption	7
	Delimitation	7
	Definitions	7
2	Review of the Literature	9
	Rationale for Teaching Online Searching Skills	10
	Rationale for Examining a Variety of Assistance Methods	15
	Summary	18
3	Methodology and Procedures	20
	Design of the Study	20
	Population	20
	Instrumentation	21
	Data Collection	22
	Data Analysis	25

4 Results 26

Research Question One 27

Research Question Two 28

Research Question Three 29

5 Discussion and Conclusions 32

Findings 32

Discussion 33

Applications 39

REFERENCES 42

APPENDIXES 45

CHAPTER ONE

INTRODUCTION

Overview

Technology is revolutionizing student access to information in the library media center. With the sudden conversion from card catalogs and paper indexes to electronic databases both online and in CD-ROM format, library media specialists are now faced with the challenge of developing new instructional methods to ensure that students acquire the skills necessary to use these new electronic databases.

A national cry for school reform and the rapid introduction of technology into the school environment are two influences that have dramatically impacted educational goals and objectives. School library media specialists are now called upon to react positively to these irreversible changes by providing effective leadership in the area of electronic information access. In the document Information Power, the

American Association of School Librarians and the Association for Educational Communications and Technology established three roles that school library media specialists must adopt in order to develop library media programs which will enable students to succeed in the twenty-first century. In Information Power, these three separate but often overlapping roles were defined as an information specialist, an instructional consultant, and a teacher (Information Power, 1988). Though it is the responsibility of the media specialist to consult with teachers and to act as an information specialist by providing appropriate resources for each information need, the library media specialist will most likely act as the primary teacher of online database skills since the library media specialist has the most training and experience in this area.

Experience and observation suggest that students are naturally attracted to electronic databases and enjoy experimenting with their use (Schamber, 1990). When students actively gather around terminals waiting their turn to use them and seldom ask for assistance, library media specialists might assume that students need little or no instruction to achieve successful

online catalog searching results. However, the results of three studies conducted by Karabenick and Knapp (1991) suggest that the students who are the least likely to ask for help from the library media specialist are those who need it most. Extensive research supports the argument that academic and adult public online catalog users experience a variety of difficulties and frustrations as they learn to search the online catalog (Markey, 1984; Yee, 1991). Since online catalogs have not been widely used in kindergarten through twelfth grade (K-12) library media centers until recently, inadequate information exists on the problems K-12 students experience. However, the results of two recent studies with K-12 students suggest that young users experience at least as many difficulties as adult users (Chen, 1993; Edmonds, Moore & Balsom, 1990). In fact, Hooten suggests that children may experience even greater difficulties because they are often confronted with a different online catalog system at school from the one at the local public library (1989). Considering all of the user problems which have been documented by research, it would be a serious mistake for library media specialists to interpret student enthusiasm to mean

that students will not need instruction in online catalog searching skills to be able to locate adequate resources for their research assignments and personal interests. Instead, library media specialists must develop new instructional programs to teach electronic information access skills to these students (Schamber, 1990).

Though inadequate information exists on the methods library media specialists are presently using to teach students to access information with online catalogs, previous studies would encourage experimentation with a variety of teaching methods. Research in the last two decades has revealed that students possess a variety of learning-style preferences (Dunn & Smith, 1990); therefore, library media specialists should be evaluating the use of variety of methods to successfully teach information access skills.

Extensive research has reported conflicting results concerning the types of assistance methods used and preferred by academic and public online catalog users. In one extensive study, users reported that they had learned to search the online catalog using the following methods: printed instructions, online

instructions, library staff assistance, a library course, or a friend (Markey, 1984). A survey of users participating in this study revealed a strong preference for the use of printed instructions (Markey, 1984). Conversely, Neilsen (1986) reported that students who had a instructional session before searching performed better than those who used printed instructions as their first method of instruction while Hildreth (1982) argues that the most effective instructional materials are those that are offered on the computer screen.

No studies could be found which attempted to evaluate the instructional methods used to teach online searching skills to K-12 students. Recent studies (Moore and St. George, 1991; Chen, 1993) point out that K-12 students experience only limited success with their card catalog and online catalog searches. However, a variety of assistance methods was not offered in any of these studies. With new and greater challenges as established in Information Power (1988), library media specialists need a greater understanding of the assistance methods which will prove effective in teaching K-12 students to conduct successful searches with the online catalog.

Statement of the Problem

In response to the changes in curriculum as a result of educational reform and the introduction of instructional technology in the school library media center, the library media specialist has the professional responsibility as established in Information Power to employ all necessary methods to ensure that all students acquire the skills they will need to become lifelong learners.

The purpose of this research study was to develop a beginning understanding of the assistance methods eighth-grade students will use to search the online computer catalog. Three research questions guided the investigation:

(1) What assistance methods did the students use to accomplish their searches?

(2) Which assistance method did students prefer?

(3) Did evidence exist of a relationship between gender and the assistance method preferred by the students?

Significance of the Study

Library media specialists will have a greater insight into which teaching or assistance methods are

preferred by eighth-grade students who are searching online catalogs while performing research projects. Library media specialists might modify their instructional plans to reflect assistance methods students report they use most. The results of this study could guide educators in selecting effective instructional methods to teach eighth-grade students to use other electronic databases.

Assumption

During data collection, the assumption was made that all students who completed questionnaires were searching for resource materials to complete their required research projects.

Delimitation

This study was delimited to research projects assigned to eighth-grade students at one Cobb County middle school. It was also delimited to one online catalog program.

Definitions

Dodgen Online Guide -- title given to a printed flip chart designed by the researcher to be used

independently by the student, specifically for the online catalog used in this study.

Assistance method -- term used for the instructional methods used by the students as they learned to search for materials for their research projects. The methods available to the student were: help from a library media specialist, help from another student, help from a teacher, on-screen instructions, printed instructions, and a lesson presented by the library media specialist.

CHAPTER TWO

REVIEW OF THE LITERATURE

An abundance of literature supports the argument that online catalog users require assistance in learning to perform successful searches using the online catalog. Extensive research examined the use of online catalogs in academic and public libraries, and many studies suggested the assistance methods which are most helpful to users. Some recent studies have investigated the experiences of K-12 users who were learning to use the online catalog; however, no research can be found to indicate the assistance methods preferred by these students. This chapter discusses the rationale for examining the assistance methods preferred by eighth-grade students in learning to search the online catalog in the school library media center.

Rationale for Teaching Online Searching Skills

With the publication of Information Power (1988), the document representing the new standards set forth for school library media programs by the American Association of School Librarians and the Association for Educational Communications and Technology, library media specialists became responsible for preparing students to become lifelong learners and informed citizens of the twenty-first century. To accomplish this goal for students, the library media specialist must function in three separate but interrelated roles: (1) information specialist, (2) instructional consultant, and (3) teacher. "The role of the library media specialist as an information specialist is extremely important because an individual's success in the next century will depend, to a large extent, upon the ability to access, evaluate, and use information" (p. 27). While providing access has always been the responsibility of the library media specialist, this function has increased in complexity with the "revolution in information and instructional technologies" (p. 27). Skills to be mastered now include not only manual searching techniques but also "computer searching of online and local databases and

electronic catalogs" (p.30). In the role of teacher, the library media specialist often works cooperatively with other instructional personnel; however, "in some cases, library media specialists have primary responsibility for teaching information skills." (p. 32.) The instruction in searching electronic databases such as the online catalog may remain the sole responsibility of the library media specialist who usually has the most experience and training in this area.

Library media specialists may share Schamber's (1990) observation that "students are motivated to interact with the machine and to browse through and play with information in a way that naturally tends to improve their information skills" (p.4). However, substantial research suggests that library media specialists will need to provide planned instruction to assist students in learning to complete successful searches with the online catalog. Yee (1991) compiled the results of numerous online catalog research studies conducted in academic and public libraries and listed 21 problems frequently reported by online catalog users. Among the frequently encountered problems reported by online catalog users are the following:

difficulty in finding subject terms, difficulty in increasing results, difficulty in understanding the codes used for location of resources, problems with spacing, infrequent use resulting in the need for future relearning, and failure to use features such as truncation which could improve search results. In the extensive national study conducted under the direction of the Council of Library Resources (CLR) in 1981, research was conducted using surveys, transaction log analysis, and focused-group interviews. In focused-group interviews, participants reported having experienced a variety of frustrations in attempting to achieve successful search results with online catalogs. In CLR surveys, a majority of respondents reported that they had utilized a variety of assistance methods in learning to search the online catalog. In fact, only 13% of total responses on one questionnaire completed by 7,414 respondents indicated that these respondents learned without any help (Markey, 1984).

Yee (1991) attributes many of the difficulties reported by users to the inadequacies in online catalog system design, charging that

> "most existing online public access catalogs began as technical processing or circulation systems

> designed for use by library staff...considerable training could be assumed, and the fact that it took some time to learn to use them was not as much of a problem as it became when the systems were made available to untrained casual library users without the time or the willingness to submit to extensive training" (p. 78).

It must be recognized that many of the online catalog systems which recently have been introduced into school library media centers have better access features than the systems used in these previous studies. Many of the online catalogs now in schools possess capabilities which Hooten, (1989) describes as "second-generation" system features such as menu driven starting screens, command prompts located on screens, and keyword searching. While these improved features eliminate some of the opportunities for error which caused the frustration expressed by users in the earlier studies, other problems previously reported have not yet been alleviated by system software redesign. Spell checking and online prompts do not yet exist on many of the online catalogs presently used in school library media centers. Also, it would seem that children, who have less experience with research,

typing, and alphabetization would experience special difficulties in addition to those reported by academic and public library users. Hooten (1989) makes the following observation about the unique challenge facing the K-12 student:

> In the short term, children may be affected more than adults by the move to online catalogs, because they use multiple library systems (public and school libraries) that are frequently implementing quite different automation hardware and software systems at different rates. (p. 268).

Therefore, students may be confronted with one kind of access mode in the public library and another type in their school library. And in some school library media centers, the problem may become even more complex as students are confronted with a variety of other databases requiring different access methods such as the electronic magazine index and CD-ROM encyclopedias. Hooten (1989) predicts that the transition from traditional card catalogs to online catalogs will be a "period of inconsistency and diversity that will be especially problematic for children, who generally thrive on consistency " (p. 272). Therefore, literature suggests the need for library media

specialists to "revise their curricula to encourage the development of electronic searching skills".... (Schamber, 1990, p.4).

Rationale for Examining a Variety of Assistance Methods

Since online catalogs have not been widely used in elementary and secondary schools until recently, few studies have been conducted to guide the library media specialist in planning instruction. However, research in the last two decades has revealed that students possess a variety of predetermined learning-style preferences (Dunn & Smith, 1990), suggesting the library media specialist acting in the role of teacher should evaluate the use of various assistance methods. Moreland (1993) observed that reference librarians express a variety of preferences for learning to search electronic databases and advises those who are planning instruction to accommodate inherent learner differences.

Significant research reveals conflicting results concerning the types of assistance methods preferred by academic and public online catalog users. In the extensive CLR study in 1981, users reported that they had learned to search the online catalog using the

following assistance methods: printed instructions, online instructions, library staff assistance, a course taught by the library staff, or a friend (Markey, 1984). In the CLR study, 34% of the total responses on one questionnaire indicated that participants used printed instructions as one of the ways they learned to use the online catalog (Markey, 1984). In the same study, focused-group dialog revealed groups of patrons who refused to request help from the library staff. These patrons "wanted to teach themselves how to use devices on their own time and at their own convenience" (p. 61). One graduate student stated, "'I am embarrassed to ask the librarian a question that's so obvious to him.'" (Markey, 1984, p. 61). In a more recent survey at one university, 21% of undergraduate students and 39% of graduate students in a campus survey responded that they used printed instructions as one of the primary ways to learn to search (Worrell, 1993). Conversely, Neilsen (1986) reported that students who had an instructional session before searching performed better than those who used printed instructions as their first method of learning to use the online catalog. Hildreth (1982) argues that the most effective assistance method is that which is

available on the computer screen. Observing the learning preferences of reference librarians learning to search CD-ROM databases, Moreland (1993) suggests that users with strong introverted tendencies prefer to learn individually with printed instructions while those with extroverted tendencies prefer help from a librarian or practice in small groups.

While no studies could be found which examined the assistance methods preferred by K-12 students learning to search online catalogs, the results of recent studies conducted with K-12 students suggest that library media specialists need to evaluate several assistance methods to determine which methods students will use. One study conducted with sixth grade students using a card catalog observed that students made many errors which caused their searches to be unsuccessful. However, "few children in this sample thought of asking a teacher or librarian for help at any stage of the research process."(Moore and St. George, 1991, p.165). In another study in which high school students were given a fifty-minute instructional session before searching an online catalog, students achieved success with only 60% of their searches (Chen, 1993).

Library media specialists who are concerned with providing gender equity in teaching information access skills could benefit from knowing whether a relationship exists between gender and the assistance method preferred in learning to conduct successful online catalog searches. A study which attempted to measure the relationship between gender and computer use among eighth-grade students searching an electronic encyclopedia found equity in achievement; however, this study was limited to eighty students and only one assistance method (Eastman & Krendl, 1987). More research is needed to determine whether gender differences exist in assistance methods preferred by eighth-grade students conducting electronic searches.

Summary

To meet the complex challenges set forth in Information Power, it is essential that the library media specialist consider existing research which indicates that online catalog users need assistance. Since students in elementary and secondary schools may have special needs based on their lack of research experience and the limitations of their learning styles, the library media specialist may need to employ

a variety of teaching strategies to ensure that students acquire the necessary information access skills they will need in the future.

CHAPTER THREE

METHODOLOGY AND PROCEDURES

Design of the Study

This descriptive study attempted to determine which assistance methods eighth-grade students preferred in learning to use the online catalog in preparing research projects. Although the primary focus of this study was to assess the overall assistance method preference, there was also an attempt to examine relationships which might exist between the gender of the student and the assistance method he or she preferred.

Population

The population of this study consisted of eighth-grade students enrolled in one middle school. The sample included only those students performing independent research projects who had used the online catalog during a period of six weeks (30 class days).

Instrumentation

At the end of the last day each class used the library media center, a survey questionnaire (see Appendix A) was administered to each student who performed research.

The first item on the questionnaire (see Appendix A) asked students to indicate whether they used the online catalog to complete their research projects so that non-users could be eliminated from the study.

Included in the survey instrument was a list of possible assistance methods students might have used to search the online catalog. Students were instructed to indicate whether they received assistance from a teacher, a library media specialist, a friend, online instructions, a printed instructional guide entitled Dodgen Online Guide, or a lesson by the library media specialist. Students were instructed to select as many assistance methods as applicable. These choices attempted to answer the first research question, concerning student use of assistance methods.

Using a duplicate of the first list, students were asked to select the one assistance method they preferred. This question attempted to answer the

second research question, concerning which assistance method students preferred.

In an attempt to examine a possible relationship between gender and assistance method preferred, the questionnaire asked students to indicate gender. These data attempted to answer the third research question, concerning whether a relationship exists between the assistance method preferred and the gender of the students.

The instrument was reviewed by six library media specialists and two university faculty members and was pilot-tested with five students not included in the study.

Data Collection

The eighth-grade population used in this study was chosen because the researcher was serving as a library media specialist at the middle school at the time the study was conducted; therefore, the researcher was able to control possible variations which could influence the results of the study.

The online catalog system used in this study was Search Plus version 7.82 by Follett. This online catalog system featured a menu-driven starting screen

which allowed access by subject, title, author, key word, Dewey Decimal number, series, and ISBN/LC number. This online catalog system did not offer spell checking, nor did it provide online prompts to correct student errors. Online searching assistance was represented primarily by one screen listing the functions of Boolean operators and the use of wild card symbols. Pressing a function key designated as "help" at the bottom of the key word search screen provided the only access to this screen.

Each class preparing research projects received group instructions by the same library media specialist on the mechanics of searching the online catalog using the subject and key word approach. These instructions consisted of verbal directions presented while the media specialist performed one example search at the online catalog. No large screen device was available to project computer display as the search was demonstrated.

A printed instructional guide (see Appendix B) was provided. The content of the printed instructional guide was determined by one library media specialist's assessment of the informational needs of middle school students who try to conduct searches on this online

catalog. These needs were determined by the library media specialist's observations of the problems middle school students encounter while conducting searches on this online catalog.

To give students an opportunity to choose to experiment independently, to use printed instructional guides, and to use online instructions, teachers and media staff were asked not to volunteer to assist students searching the online catalog for the first three days the students were performing research. During this three day period, students who requested the assistance of a library staff member or a teacher with their searches were given assistance. After the first three days, library media specialists approached each student to determine whether the student had been successful in locating sufficient materials to complete the research project. By providing online catalog searching assistance and any other assistance library media specialists determined students to need, the library media specialists then assisted students who stated that they needed further resources. At the end of the last day each class used the library media center, a survey questionnaire (see Appendix A) was administered to each student who performed research.

Data Analysis

The data were analyzed using frequencies and percentages for the assistance methods used and preferred.

CHAPTER FOUR

RESULTS

The purpose of this study was to determine which assistance methods eighth-grade students will use to learn to search the online catalog and which assistance method eighth-grade students prefer. Results were examined to determine whether a relationship exists between gender and the assistance method preferred.

After completing research for assigned projects, 138 eighth-grade students completed questionnaires to indicate preferences. Of the completed questionnaires, seven were eliminated because they were incomplete, and one was eliminated because of inconsistency. The student indicated that he had not used the online catalog but marked assistance methods he had used to search. On the remaining 130 questionnaires, 111 respondents indicated that they had used the online catalog to search for resources for their research projects while 19 respondents indicated they had not used the online catalog to search for resources.

Research Question One

Which assistance methods did the students use to accomplish their searches?

Table One compares methods respondents reported having used. Respondents were instructed to mark all assistance methods used. While respondents indicated that all assistance methods available were used, the assistance methods used most often were help from another student, marked by 60 respondents, and the lesson given by the media specialist, marked by 58 respondents.

TABLE ONE

ASSISTANCE METHODS USED

Method N = 111	f	% of Total Responses N = 253
Another student	60	24
Lesson by media specialist	58	23
Instructions on the screen	44	17
Media staff	41	16
My teacher	32	13
Dodgen Online Guide	18	7

Research Question Two

Which assistance method was preferred by students? Respondents were instructed to mark only one method.

Table Two shows comparisons of the methods preferred by respondents. Help from another student was the method preferred by the most respondents (28.8%), and the lesson given by the media specialist was preferred by 23.4% of the respondents.

TABLE TWO

ASSISTANCE METHODS PREFERRED

Method N = 111	f	%
Another student	32	28.8
Lesson by media specialist	26	23.4
Instructions on the screen	22	19.8
Media staff	17	15.3
My teacher	11	9.9
Dodgen Online Guide	3	2.7

Research Question Three

Was there a relationship between gender and the assistance method preferred by the students? Table Three shows comparisons of the percentages and frequency of males versus the percentages and frequency of females by the assistance method preferred. Significant differences exist, especially with female preference for help by the teacher and male preference for instructions on the screen.

TABLE THREE

ASSISTANCE METHOD PREFERRED BY GENDER

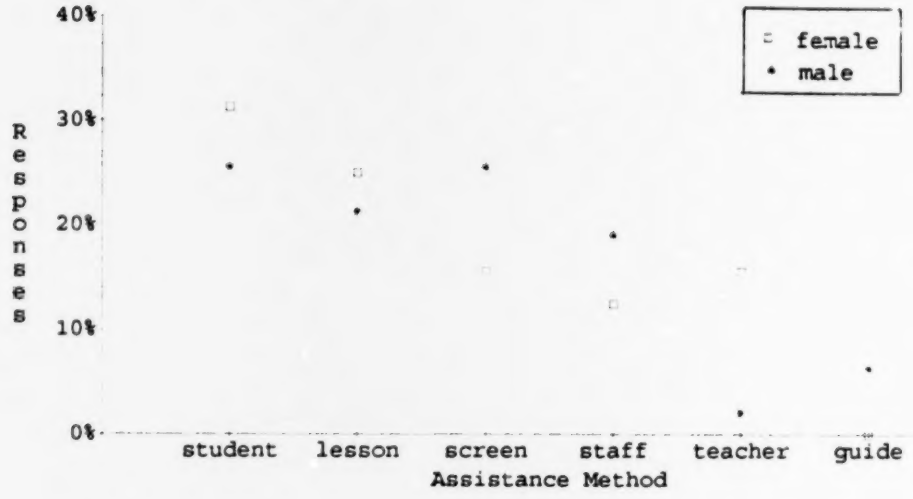
Choice	Males N = 47		Females N = 64	
	f	%	f	%
Another student	12	25.5	20	31.3
Instructions on the screen	12	25.5	10	15.6
Lesson by media specialist	10	21.3	16	25.0
Help from media staff	9	19.1	8	12.5
Dodgen Online Guide	3	6.4	0	0
My teacher	1	2.1	10	15.6

An independent samples chi-square test was used to determine whether the frequency of preferences differed by gender. Twenty-five percent of the cells (3 out of twelve) had an expected frequency of less than five. This occurrence can lead to an unstable chi square; therefore, the following results should be interpreted with caution. The obtained $\chi^2 = 11.65876$, df = 5, was significant with p = .03977.

Due to the limitations in the quantity of data available to conclusively use the chi-square test, a simple graphical comparison of the data (see Figure One) can be used to illustrate the possible gender dependency in the study.

FIGURE ONE

ASSISTANCE METHOD PREFERRED BY GENDER



As this plot illustrates, variation across the assistance methods appears to exist. In the absence of gender dependency, the male and female data would track each other more closely.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

This study attempted to determine which assistance methods eighth-grade students would prefer in learning to search the online catalog and to examine possible relationships between gender and assistance method preferences.

Findings

1. Students who searched the online catalog to locate resources used more than one assistance method. However, almost one-seventh did not use the online catalog during the time they were in the library media center working on their research projects.

2. The most preferred assistance method was help from another student, followed closely by the lesson given by the media specialist. The least preferred method was printed instructions.

3. A relationship was shown between gender and the assistance method preferred by the students, with more

males preferring help from the screen and printed instructions and more females preferring help from their teacher or from another student.

Discussion

The review of the literature indicated that electronic database searching competencies must be added to school library media curriculum to prepare our students for life in the twenty-first century. (Information Power, 1988). Although students can be observed enthusiastically experimenting with online catalogs, Schamber (1990) urges media specialists to "revise their curricula to encourage the development of electronic searching skills" (p.4). Previous studies (Yee, 1991) document the many problems that public and academic users experience when learning to use the online catalog, and Hooten (1989) provides convincing arguments that children will experience added difficulties.

The results of this study reveal that eighth-grade students will use a variety of assistance methods to learn to complete their searches on the online catalog.

Recent literature presents strong evidence that learners possess predetermined learning-style

preferences and therefore should be offered a variety of assistance methods when learning new concepts and skills. Dunn and Smith (1990) advise library media specialists to consider using of a variety of instructional materials and methods when planning instruction. Dunn and Smith (1990) point out that library media specialists acting as instructional consultants should encourage teachers to use more than one kind of instructional strategy for each concept to be taught. The results of this study reflect the value of these recommendations. Moreland (1993) also observed the effectiveness of offering adult learners a variety of assistance methods in learning to search electronic indexes, pointing out that introverted learners often choose written instructions and instructions on the screen, while extroverted learners more often choose assistance from other people. Although this study did not attempt to relate individual learning styles to assistance methods used, the findings of this study strongly support Moreland's observations by documenting that eighth-grade students will use a variety of available methods to learn to search the online catalog for resources for their research projects.

The literature attempting to evaluate preferences for assistance methods used in learning to search the online catalog offers conflicting results and recommendations. The extensive CLR study of academic and public library users revealed a strong preference for printed instructions (Markey, 1984), while another study (Neilsen, 1986) revealed that students who had an instructional session first performed better, and Hildreth (1982) argues that the most effective assistance method is help available on the computer screen.

The initial assumption based on the literature was that printed guides would be used (Markey, 1984; Worrell, 1993). The results of this study conflict with the findings in the CLR study in which over one-third of the users used printed instructions, while only a few students in this study used printed instructions. However, nearly one-fourth of the students in this study preferred a lesson presented by the media specialist, partially supporting Neilsen's (1986) findings, and almost one-fifth of the students expressed a preference for instructions on the screen, offering some support for Hildreth's argument that the most effective instructions are those available on the

computer screen. However, the researcher observed students using all other assistance methods offered except instructions on the computer screen. Six students wrote in comments such as "I figured it out mostly by myself" and "I learned by pushing buttons". These comments suggest that students might have interpreted their trial-and-error experiences using the keyboard and computer screen as using instructions on the screen. Since the only instruction screen available could be accessed only by pressing the F1 key at the keyword searching screen, and no students were observed viewing this screen, it would seem that far fewer students actually used instructions on the screen. If few students located and used this help screen, it should follow that less than one-fifth of the students could have actually preferred using this assistance method.

Moreland's recommendation that personally interactive assistance methods should be offered to learners who may have extroverted preferences is supported by the findings of this study in which over half of the students preferred assistance by other people, including students, teachers, and media staff.

The strong preference of eighth-grade students in this study for assistance by another student is not supported in the literature. In fact, Markey (1984) reported that only a few academic and public library users in the CLR study had used "help from a friend or someone at another terminal" while this study revealed that half of the eighth-grade students used assistance from another student and that assistance from another student was the assistance method preferred over all others. Psychological differences between eighth-grade students and academic and public library patrons might explain the conflicting results of this study and the findings of previous studies with academic and public library subjects. Students of this age are considered to need social interaction (Hoose and Strahan, 1988), and this social need might explain the strong preference for receiving assistance from another student. One explanation could lie in the fact that the eighth-grade students in this study, though searching for individual topics, were surrounded by their classmates, most of whom they knew and previously had used for assistance in learning other skills. In contrast, academic and public library users in previous

studies might have visited the library independently and been unacquainted any other users nearby.

The fact that approximately one-seventh of the students did not use the online catalog to locate resources for their research projects was an unexpected finding. The omission of the online catalog might have resulted from greater use of electronic resources such as CD-ROM encyclopedias and other CD-ROM reference programs, as well as a full-text magazine program available on CD-ROM. Also, on the first day the students visited the library media center, media specialists and teachers pointed out a variety of special reference books which pertained to the general subject area being researched. Students could gain access to these resources without using the online catalog.

Eastman and Krendl (1987) reported that no gender difference existed in the achievement of eighth-grade students learning to search an electronic encyclopedia, but only one assistance method was used. In contrast, this study found significant differences in gender and the assistance method preferred in learning to search the online catalog. More females preferred socially interactive assistance methods such as assistance from

another student, a library media specialist, or a teacher. More males, on the other hand, preferred independent assistance methods such as instructions on the screen and printed instructions. However, this study did not attempt to measure achievement in the number of successful searches. More research could be conducted to study the effect on achievement of offering a variety of assistance methods to teach online searching skills and the possible relationship to gender.

Epler (1989) cites the need to research attitudes and behaviors of K-12 students in hopes of gaining an in depth understanding of learner differences and their relationships to information retrieval. "Such information can be used to develop new programs, evaluate existing programs, and establish educational priorities" (p. 124).

Applications

The findings in this study have applications for library media specialists serving both in the roles of teacher and instructional consultant. Since library media specialists may now serve as the primary teacher when electronic searching skills are taught, library

media specialists may want to ensure that a variety of assistance methods are available to students who are learning to complete online catalog searches. As instructional consultants, library media specialists may also be called upon by teachers to recommend effective teaching methods to teach electronic searching skills for other electronic databases and reference sources.

The eighth-grade students in this study selected assistance by another student and a lesson given by the media specialist as the assistance methods most preferred. Library media specialists and teachers who teach eighth-grade students might consider designing instructional units which incorporate both of these assistance methods for teaching information access skills. Lessons which allow informal peer tutoring opportunities along with structured cooperative learning programs such as those advocated by D. W. Johnson and R. T. Johnson (1989) use teaching methods which allow students to use both a lesson presented by a teacher and cooperative learning experiences.

The fact that many of the students in this study expressed a preference for using assistance on the

computer screen suggests the need for online catalogs used in the K-12 researching environment to have better on-screen assistance features such as: suggestions to follow when a term typed on the subject line is not found, some cue to indicate the reason a misspelled subject is not found, and better access from subject entry to the keyword function. The students in this study who preferred instructions on the screen and printed guides might not have asked for help from other people when they were unsuccessful in performing their searches on the computer.

REFERENCES

American Association of School Librarians and the Association for Educational Communication and Technology: (1988). Information power: Guidelines for school library media programs, Chicago, IL: American Library Association.

Chen, S. (1993). A Study of high school students' online catalog searching behavior. School Library Media Quarterly, 22, 33-39.

Dunn, R. & Smith, J. B. (1990). Learning styles and library media programs, School Library Media Annual, 8, 32-49.

Eastman, S. T. & Krendl, K. (1987). Computers and gender: differential effects of electronic search on students' achievement and attitudes. Journal of Research and Development in Education, 20(3), 41-47.

Edmonds, L., Moore, P., & Balsom, K. M. (1990). The Effectiveness of the online catalog, School Library Journal, 36, 28-32.

Epler, M. (1989). Online searching goes to school. Pheonix: Oryx Press.

Hildreth, C. R. (1982). Online user assistance and "help" facilities. In Online public access catalogs: The user interface (pp.158-182). Dublin, OH: OCLC.

Hooten, P. (1989). Online catalogs: Will they improve children's access? Journal of Youth Services in Libraries, 267-272.

Johnson, D. W. & Johnson, R. T. (1989). Cooperation and competition: Theory and research. Edina, MN: Interaction Book Company.

Karabenick, S. A. & Knapp, J. R. (1991). Relationship of academic help seeking to the use of learning strategies and other instrumental achievement behavior in college students. Journal of Educational Psychology, 221-230.

Markey, K. (1984). Offline and online user assistance for online catalog searchers. Online. 8(3), 54-66.

Moore, P. A. & St. George, A. (1991) Children as information seekers: The cognitive demands of books and library systems. School Library Media Quarterly, 19(3), 161-168.

Moreland, V. (1993). Technostress and personality type. Online, 17, 59-62.

Neilsen, B. (1986). What they say they do and what they do: Assessing online catalog use instruction through transaction monitoring. Information Technology and Libraries, 5 , 28-34.

Schamber, L. (1990). Automation for the school library media center (Report No. EDO-IR-90-3) Washington, D. C.: Office of Educational Research and Improvement.

Van Hoose, J., and Strahan, D. (1988). Young adolescent development and school practices: promoting harmony. Columbus, OH: National Middle School Association.

Worrell, D. (1993). End-user database aids: How to create guides that get used. CD-ROM Professional, 6, 82-83.

Yee, M. M. (1991). System design and cataloging meet the user: User interfaces to online public catalogs, Journal of the American Society for Information Science, 42(3), 78-98.

APPENDIX A

STUDENT QUESTIONNAIRE

Name_____ Pod_____

Check one: Male_____ Female_____

1. Did you use the **online computer catalog** for your research project? YES _____ NO_____

If your answer is no, please do not answer any other questions.

---

2. Check the ways you received help in using the **online computer catalog**.
(You may check more than one.)

Dodgen Online Guide _____

Lesson given by media specialist _____

Instructions on the screen _____

A media specialist or media parent volunteer_____

My teacher _____

Another student _____

3. Which method was the **most** helpful? Check only **one**.

Dodgen Online Guide _____

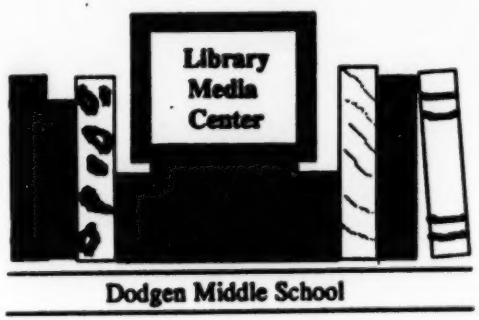
Lesson given by media specialist _____

Instructions on the screen _____

A media specialist or media parent volunteer_____

My teacher _____

Another student _____



Dodgen Online Guide

BEGINNING A SEARCH

TITLE SEARCH

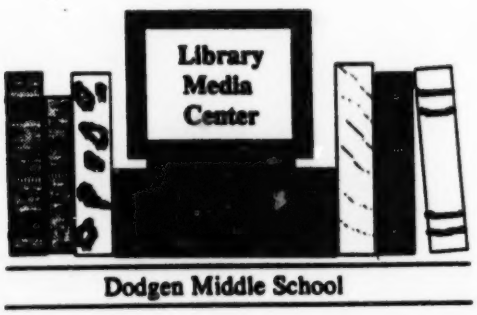
AUTHOR SEARCH

SUBJECT SEARCH — TRY FIRST

KEYWORD SEARCH — TRY SECOND

ADVANCED KEYWORD SEARCHING

ADVANCED KEYWORD SEARCHING

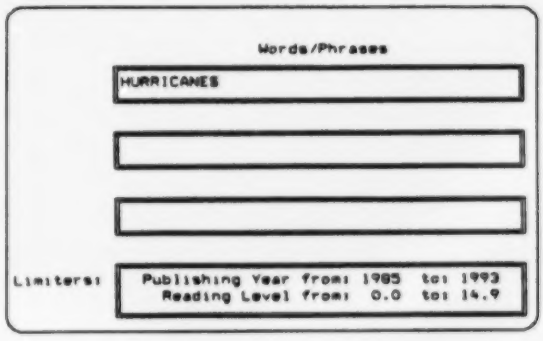


Dodgen Online Guide

Advanced Keyword Searching

1. Press **F3** to clear the keyword screen.

To find information on recent **hurricanes**, type and set dates ->

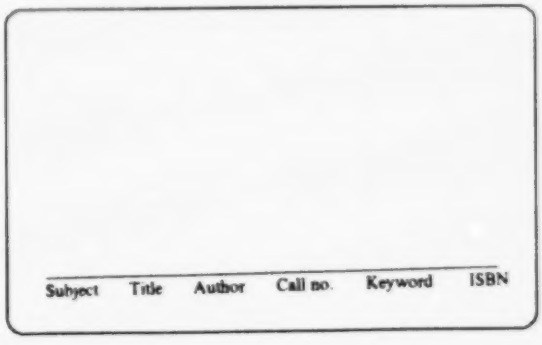



```
551.55
LAM
          TITLE: Hurricane
         AUTHOR: Lampton, Christopher
         SERIES: Disaster! bk
      PUBLISHED: Millbrook, [c1991].
       MATERIAL: 64p illus (part col).
           NOTE: Glossary
           NOTE: Bibliog
           NOTE: Describes the causes and development of tropical storms and
                 hurricanes, and discusses the destruction they cause,
                 hurricane names, predictions and warnings, and safety
                 precautions
        SUBJECT: Hurricanes--Sears
        SUBJECT: Storms--Sears
                                                              (continued)
```

```
Search = HURRICANES
```

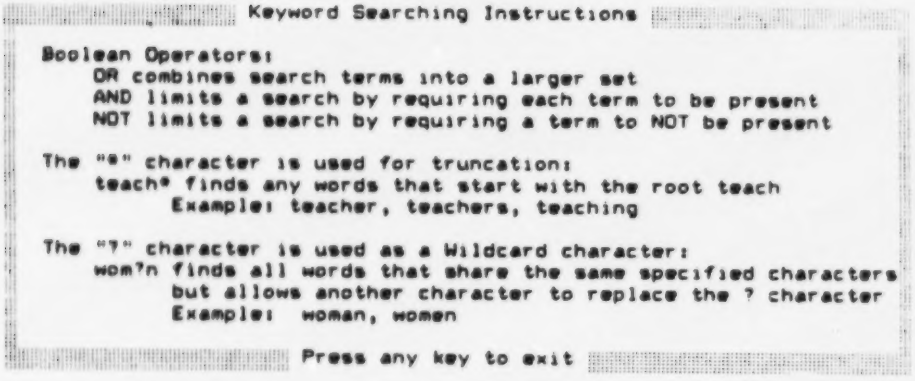
TO END A SEARCH

Press **ESC** until you get back to this screen ->



BEGINNING A SEARCH

ADVANCED KEYWORD SEARCHING


Keyword Searching Instructions
Boolean Operators:
OR combines search terms into a larger set
AND limits a search by requiring each term to be present
NOT limits a search by requiring a term to NOT be present
The "*" character is used for truncation:
teach* finds any words that start with the root teach
Example: teacher, teachers, teaching
The "?" character is used as a Wildcard character:
wom?n finds all words that share the same specified characters
but allows another character to replace the ? character
Example: woman, women
Press any key to exit

1. Press **F3** to clear the keyword screen.

TO SEARCH BY TITLE

1. Using the ← or → keys to highlight the word **title**.
2. Press ENTER
3. Type the **title.**
   Examples : Charlie and the Chocolate Factory
   Tales of a Fourth Grade Nothing
   The Outsiders
4. Press ENTER
5. Make sure the highlight appears on the title you are seeking.
6. Press ENTER
7. A complete record of the book appears. If you want this book, write down the title and call number.
   Hint: If the book is **not** checked out, there will be a message that says **Copies Available** at the end of the record.
8. To start over, press **ESC** several times.

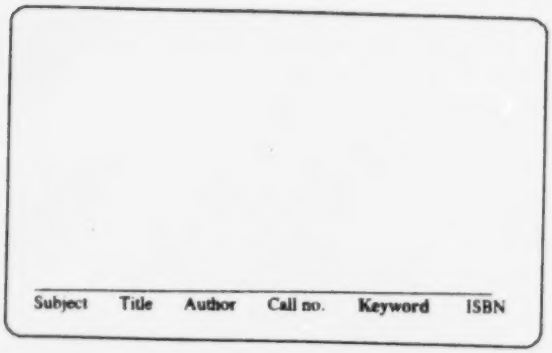
TITLE SEARCH

BEST COPY AVAILABLE

KEYWORD SEARCH

TO BEGIN A SEARCH

Press **ESC** until you return to this screen →



TO SEARCH BY AUTHOR

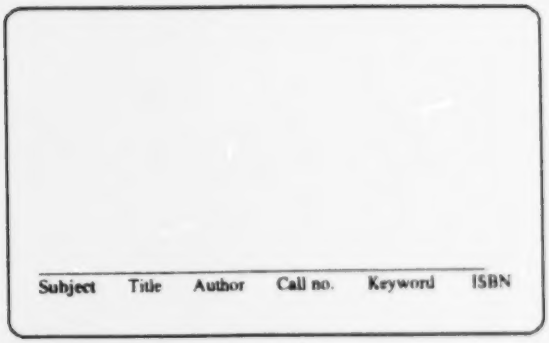
1. Using the ← or → keys to highlight the word **Author**.
2. Press ENTER
3. Type the **last** name of the author.
   Example : For Lois Duncan, type **Duncan**
4. Press ENTER
5. Make sure the highlight appears on the author you are seeking.
6. Press ENTER
7. If there is more than one book by this author, a list of all the titles in our media center will appear.
8. Highlight a title.
9. Press ENTER
10. A complete record of the book appears. If you want this book, write down the title and call number.
    Hint: If the book is **not** checked out, there will be a message that says **Copies Available** at the end of the record.
11. To look at other books by this author, press **ESC** once and go to step 8.
12. To start over, press **ESC** several times.

AUTHOR SEARCH

SUBJECT SEARCH

TO BEGIN A SEARCH

Press **ESC** until you return to this screen →



TO SEARCH BY SUBJECT

1. Using the ← or → keys to highlight the word **Subject**. 2. Press ENTER

3. Type a subject. 4. Press ENTER

Examples: mammals
United States History
Washington, George
Aaron, Hank

Hints: Last name goes first.
Spelling is important!

4. Look at the list of subjects that appear. Move the cursor to the subject you choose. 5. Press ENTER

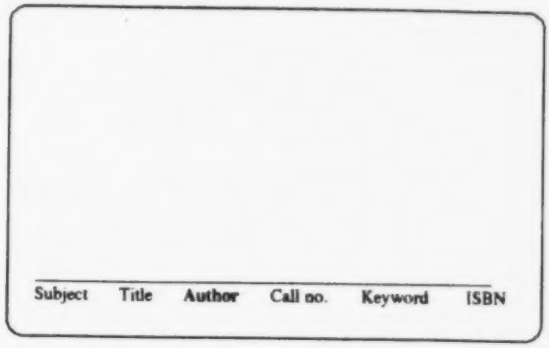
6. Move the cursor to the title you choose. 7. Press ENTER
A complete record of the book appears. If you want this book, write down the title and call number.

Hint: If the book is **not** checked out, there will be a message that says **Copies Available** at the end of the record.

8. To start over, press **ESC** several times.

SUBJECT SEARCH TRY FIRST

AUTHOR SEARCH



TO BEGIN A SEARCH

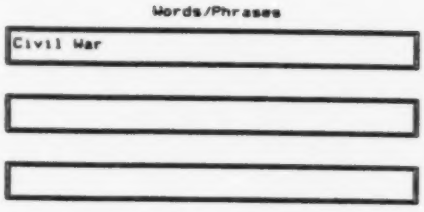
Press **ESC** until you return to this screen →

TO SEARCH BY KEYWORD

1. Using the <- or -> keys to highlight the word **keyword**. 2. Press ENTER

3. Press **F3** to clear the last search.

4. Type a word or term on the first red line.



Examples of words that cannot be found as subjects but can be used as keywords:

cars
origami
Ancient Greece
Civil War
carnivals

5. Press ENTER

6. Look at the list of titles that appear. Move the highlight to the title you choose.

7. Press ENTER
A complete record of the book appears. Read the record **carefully**.
If you want this book, write down the title and call number.

Hint: If the book is not checked out, there will be a message that says **Copies Available** at the end of the record.

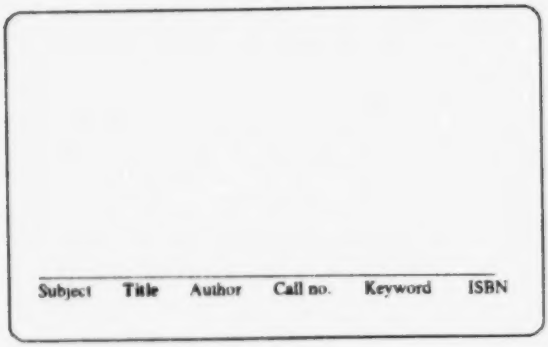
KEYWORD SEARCH

TRY SECOND

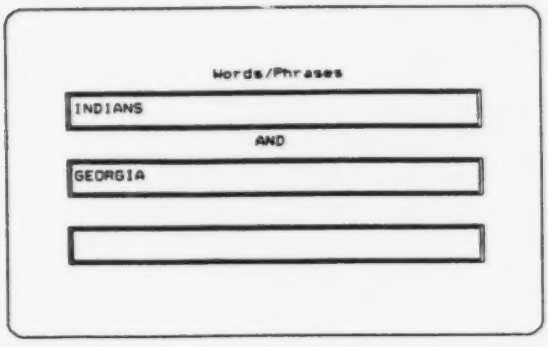
TITLE SEARCH

TO BEGIN A SEARCH

Press **ESC** until you return to this screen →



To find books about **Indians** in **Georgia**, type ->



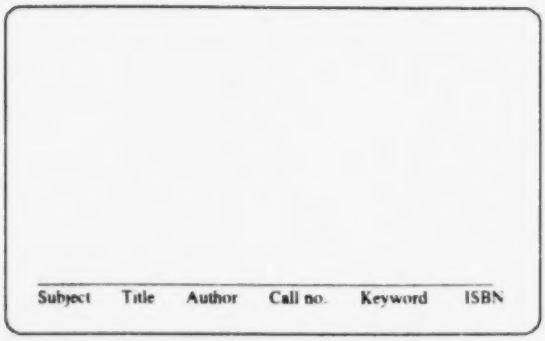

```
970.3
Bea
          TITLE: Only the names remain; the Cherokees and the Trail of Tears /
                 by Alex W. Bealer. Illustrated by William Sauts Bock.
         AUTHOR: Bealer, Alex W.
      PUBLISHED: 1st ed.  Boston:  Little, Brown, (1972).
       MATERIAL: 88 p. illus. 24 cm.
           NOTE: Describes the life of the Cherokee Indians in Georgia before
                 and after the U.S. government forcibly removed them from
                 their land.
        SUBJECT: Cherokee Indians
    ADDED ENTRY: Bock, William Sauts, 1939-, illus

Copies Available: 970.3 Bea
                  970.3 Bea
```

ADVANCED KEYWORD SEARCHING

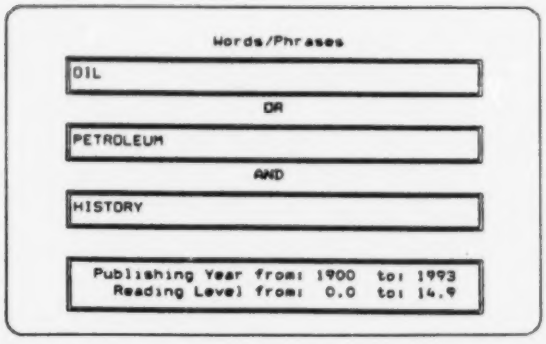
TO BEGIN A SEARCH

Press **ESC** until you return to this screen →



1. Press **F3** to clear the keyword screen.

To find additional sources about John D. Rockerfeller, a leader in developing the **oil** industry, type ->




```
338.2
But
          TITLE: Black gold : the story of oil / by W. E. Butterworth.
         AUTHOR: Butterworth, W. E., 1929-
      PUBLISHED: New York: Four Winds Press, [1975].
       MATERIAL: 224 p. : ill. ; 23 cm.
           NOTE: Includes index.
           NOTE: Traces the history of oil from its use by the ancient
                 Sumerians through the present energy crisis, with emphasis on
                 the men who fought for control of the oil industry.
        SUBJECT: Petroleum--History
        SUBJECT: Petroleum industry and trade--History

Copies Available: 338.2 But
```

```
Search =  ( OIL OR PETROLEUM ) AND HISTORY
```

ADVANCED KEYWORD SEARCHING